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ABSTRACT

Drawing on research by the author, this paper analyzes the composition of the interpersonal communication networks (auxiliary channels) which are pervasive in human society. These networks tend to be 1) primary in nature, containing four members from primary relationships and one from a secondary relationship, and 2) reflective of neighborhood and occupational lines. Central communicators tend to be 1) people, or those auxiliary to them, to whom others go for services, 2) whose service is performed in a relatively short period of time, 3) who can have more than one person at a time on the premises, either waiting for or performing the service simultaneously, and 4) of either sex and 5) of any age above 18. There were no distinguishing characteristics between high participating central communicators and low participating central communicators. Several social characteristics of the central communicator parallel those of the influential in communication literature. (Author)

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AN INVESTIGATION OF THE COMPOSITION OF INTERPERSONAL COMMUNICATION NETWORKS

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Abstract

The paper draws upon research by the author to determine the composition of the interpersonal communication networks (auxiliary channels) which are so pervasive in human society. These networks tend to be (1) highly primary in nature, containing four members from primary relationships and one member from a secondary relationship, in a five-member network, and (2) reflective of neighborhood and occupational lines.

Central communicators tend to be (1) persons, or persons auxiliary to them, to whom others go for services, (2) whose service is performed in a relatively short period of time, (3) who can have more than one person at a time on the premises, either waiting for or receiving the service simultaneously, and (4) of either sex and (5) any age, above eighteen.

Among those characteristics which have distinguished central communicators as a whole from all others in the interpersonal networks, there were no distinguishing characteristics between high participating central communicators and the low participating central communicators.

Several social characteristics of the central communicator parallel those of the influential in communication literature.

AN INVESTIGATION OF THE COMPOSITION OF INTERPERSONAL COMMUNICATION NETWORKS

Throughout the ages, as Lerner notes,[1] people who live together in a common polity have developed patterned ways of distributing information, as of distributing other commodities. Initially this exchange of information took place in the context of what has since been called the "parish pump."[2] Lerner characterizes a society with this type of public communication system as an oral system society.[3] However, with the advent of the printing press and subsequent media of mass communication, these patterns changed significantly. Where earlier man interacted basically in informal channels of communication, he now interacted extensively with his formal channels of communication. This new type of public communication system developed a society characterized as a media system society.[4]

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[1]Daniel Lerner, "Communication Systems and Social Systems," in Wilbur Schramm (ed.), Mass Communication (Urbana: University of Illinois Press, 1960), p. 131.

[2]A type of primary communication activity where oral news is disseminated within or around some recognized physical setting. Initially the parish pump was prominently such a place.

[3]Lerner, p. 132.

[4]Ibid.

Nevertheless, these new formal channels of communication did not supplant the informal channels. Rather, social man uses the two channels in concert to supply to him that environmental surveillance felt necessary to experience a sense of reliability about the world in which he lives.

This paper is an interim summary of a larger, on-going investigation into the structure and function of the interpersonal networks.

The conclusions reported here are from data gathered in two intermountain communities in the two contiguous states of Utah and Idaho. The Utah community has a population of about 6,000 and the Idaho community has a population of about 10,000. The data came from sixty respondents, chosen for their axial positions in interpersonal networks (central communicators), who kept a daily record of local news (but news of interest beyond the confines of their neighborhood) which they received through informal channels for a period of ten days.

Composition of Interpersonal Networks

The investigation indicated that interpersonal networks are primary in their social composition.

To determine the composition of the interpersonal networks, two

major groupings were utilized. The first major grouping was conceptualized as being primary in nature, and included three groups: close primary relations (spouse, children, relatives), extended primary relations (friends and neighbors), combination primary-secondary relations (co-workers). The second major grouping is basically secondary in nature and includes businessmen, customers, clerks, religious leaders, chance acquaintances and the like.

Second, eight news stories currently being transmitted--four in each community--were selected and the networks plotted for each respondent who reported these eight stories. This resulted in the study of 40 interpersonal networks, which were put in the form of sociograms.

The content of all eight stories was felt to be of widespread interest in the communities and somewhat free of occupational, income, and other bias.

Tabulation of the news sources in the 40 sociograms yielded the following:

A five-member interpersonal network typically included (1) one participant from the close primary group, most probably the spouse, followed by a child, (2) two participants (three in the case of the housewife) from the extended primary group, more often designated as

"neighbor" rather than "friend," but including both, (3) one participant from the primary-secondary group, in the case of people who work, in the form of a co-worker, (4) one participant from the secondary group, most probably a businessman, but not one acting as clerk. Again, for the housewife, this fifth member would more often than not be equally drawn from either the close or extended primary group.

In sum, the interpersonal networks tend to be highly primary in their composition.

Type of News Transmitted Through Interpersonal Networks

The investigation indicated that the content of messages transmitted through the interpersonal networks is centered around the interests and pursuits of the members who make up the interpersonal networks.

Klapper notes that people tend to expose themselves to those messages which are in accord with their existing attitudes and interests, and that consciously or unconsciously, they avoid messages of opposite hue. Further, when exposed to such unsympathetic material, people often seem not to perceive such material, or to recast and interpret such material to fit predispositions, or to forget such

material more readily.[5] Bogart, too, notes that transmitted information tends to select in its audience a "large concentration of persons who are favorable to its objectives."[6] Finally, Berelson and Steiner state that the "spread of rumors is directly related to audience predispositions: rumors tend to be heard by people to whom they are congenial; they are passed on more by such people;..."[7]

Since interpersonal networks are formed to help in the surveillance of the individual's environment, it was expected that the networks will tend to include participants in its composition who share common interests and concerns. Consequently, the networks will tend to transmit information compatible to the interests and concerns of the members of the networks and will tend to avoid transmission of information incompatible to the interests and concerns of the members of the networks.

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[5]Joseph T. Klapper, The Effects of Mass Communication (New York: The Free Press, 1960), p. 19.

[6]Leo Bogart, "Measuring the Effectiveness of an Overseas Information Campaign: A Case History," Public Opinion Quarterly, XXI, No. 4 (Winter, 1957-58), p. 497.

[7]Bernard Berelson and Gary Steiner, Human Behavior (New York: Harcourt, Brace and World, Inc., 1964), p. 531.

Two types of news stories were investigated which would reflect the respondents' predispositions for messages, that is, his interests and concerns. One was news related to the respondents' occupations and the second was news related to the respondents' organizational interests and activities.

The determination of the occupational news comprised two steps. The first step was to isolate the occupation-related stories reported by each respondent in each sample. Occupation-related news was considered to be that news whose content was centered about an occupational activity or interest. Following this, the occupation-related news stories were categorized into (1) occupation-related news centering on the respondent's own occupation, and (2) all other occupation-related news. Lacking a definition of the activity and interests of the housewife--attempts proved either too broad or too narrow--these respondents were given their spouses' occupations.

The number of occupation-related news centering on the respondents' own occupation ranged from 0 to 13 per respondent in the Idaho sample, with a total of 55. For all other occupation-related news in the Idaho sample the range was 0 to 6, with a total of 19.

The number of occupation-related news centering on the respondents'

own occupation in the Utah sample ranged from 0 to 7, with a total of 41. For all other occupation-related news in the Utah sample the range was 0 to 3, with a total of 13.

Statistically in each sample, there was a significant difference between the number of news stories respondents reported centering on their own occupation and the number of news stories respondents reported centering on other occupations. The difference was tested by use of analysis of variance.[8]

In the Idaho sample, the calculated F was 4.59, significant at the .01 level. For the Utah sample, the calculated F was 12.20, also significant at the .01 level. (See Table 1.) This indicates that the difference in the amount of news stories these respondents reported concerning their own and other occupations is greater than could be expected by chance alone for both samples.

The determination of organization-related news stories was the same as that of occupation-related news. The first step was to isolate the organizational-related news reported by each respondent in each community. Organization-related news was considered to be that news

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[8]N. M. Downie and R. W. Heath, Basic Statistical Methods (New York: Harper and Row, Pub., 1965), pp. 176-182.

Table 1. Total number of occupation-related news stories by community for respondents' own occupation and for all other occupations, and F and significance level between these totals

	Number of News Stories Reported Centering on Respondents' Own Occupation	Number of News Stories Reported Centering on Occupation Other than Respondents' Own	F	Sign. Level
Idaho Community	55	19	4.59	.01
Utah Community	41	13	12.20	.01

The .01 level of significance is 4.03.

whose content was centered about organizational activity and interests. Second, the organization-related news stories were divided into (1) organization-related news centering on the respondent's own organizational affiliation, and (2) all other organization-related news.

The number of organization-related news stories centering on the respondents' own organizations ranged from 0 to 5 in the Idaho sample. The total was 25. For all other organization-related news, the range was 0 to 1, and the total was 6.

The number of organization-related news centering on the respondent's own organizations in the Utah sample ranged from 0 to 6. The total was 53. In the Utah sample, all the other organization-related news ranged from 0 to 2, with a total of 11.

Again, in each sample between the number of news stories respondents reported that centered on their own organizations and the number of news stories reported centering on other organizations, there was a significant difference. Using analysis of variance comparing the number of stories in the two classifications reported by the respondents in the Idaho sample,[9] the calculated F was 5.57, significant at

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[9] Ibid.

the .01 level. For the Utah sample the calculated F was 18.96, again significant at the .01 level. (See Table 2.)

Characteristics of Central Communicators

The investigation indicated that the central communicators tended to differentiate themselves from other members of the interpersonal network on the social characteristics of size of family, income, and education, but between high and low participating central communicators there were no distinctions identified.

Within the informal channels of communication, Berlo[10] and Shibutani[11] note that participants in an interpersonal network receive and transmit more information than do other network participants. These high contact rate participants are referred to here as central communicators. In times of low collective excitement the role that central communicators enact are pivotal in a study of interpersonal networks,[12]

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[10]David K. Berlo, The Process of Communication (New York: Holt, Rinehart and Winston, Inc., 1960), p. 148.

[11]Tamotsu Shibutani, Improvised News (New York: The Bobbs-Merrill Co. Inc., 1966), p. 125.

[12]Reed H. Blake, "The Relationship Between Collective Excitement and Rumor Construction," The Rocky Mountain Social Science Journal, Vol. 5, No. 2 (October 1969), pp. 119-126.

Table 2. Total number of organization-related news stories by community for respondents' own organizations and for all other organizations, and F and significance level between these totals

	Total Number of News Stories Reported Centering on Respondents' Own Organizations	Total Number of News Stories Reported Centering on Organizations Other than the Respondents' Own Organizations	F	Sign. Level
Idaho Community	25	6	5.57	.01
Utah Community	53	11	18.96	.01

The .01 level of significance is 4.03.

for the formalization that is present in normal communicative acts must be taken into consideration.

In this study, central communicators were dissimilar from the average population in the areas in which they resided on the social factors of size of family, income, and education.

Among central communicators the average size family in both communities was 5.60. However, for the county in Idaho from which the sample was drawn, the average size family was 3.89, for the Utah county the average size was 3.46.[13] (In 1960, for the state of Idaho the average family size was 3.78; for Utah the average family size was 3.99.[14])

Annual family income among the respondents in the Idaho sample was above $8,000. For the county in which they reside the average is $5,113,[15] and in the city the average was $6,096.[16] Annual family

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[13]U.S. Bureau of Census, U.S. Census of the Population: 1960, Vol. 1, Characteristics of the Population, Part 14, Idaho, U.S. Government Printing Office, Washington, D.C., 1963, p. 23, and Part 46, Utah, p. 54.

[14]U.S. Bureau of Census, Statistical Abstract of the United States: 1965 (86th edition), Washington, D.C., 1965, p. 38.

[15]U.S. Bureau of the Census, Characteristics of the Population, Part 14, p. 77.

[16]Ibid., p. 75.

income among the respondents in the Utah sample was above $7,000. For the county in which they reside the average is $4,502,[17] and in the city the average was $4,173.[18]

The average educational level is 14.03 years of schooling for the Idaho sample respondents, compared to 11.7 years of schooling for the county as a whole. Among the Utah respondents the average educational level was 14.27, compared to 12.1 for the county as a whole. In 1960, for the state of Idaho, the average years of schooling was 11.8, and for Utah, 12.2.[19]

During the course of this investigation, it became evident that not all of the 60 central communicators selected for this investigation participated in the process of rumor transmission at equal rates. Consequently, attention was turned to isolating the high participating central communicators in an attempt to determine social characteristics which would identify this type of person. If this were done, it

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[17] Ibid., Part 46, p.65.

[18] Ibid., p. 64.

[19] U.S. Bureau of the Census, County and City Data Book, 1967 (A Statistical Abstract Supplement), U.S. Government Printing Office, Washington, D.C., 1967, p. 83 and p. 383.

could, perhaps, make a further contribution to the study of the opinion leader.[20]

For purposes of investigation, central communicators who reported the highest number of news stories and those who reported the lowest number were compared on the social characteristics of age, sex, marital status, education, income, length of residence in community, and number of organizational affiliations.

Unfortunately, among those characteristics which to this point have distinguished central communicators as a whole from all others who participate in the interpersonal networks, there were no distinguishing characteristics between the high participating central communicators and the low participating central communicators. (See Table 3 and Table 4.)

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[20]DeFleur suggests that the "diffusion of rumor through communities or other social systems may follow patterns which are very similar to those which result when information passes from opinion leaders to their followers in the two-step flow of communication."
See Melvin L. DeFleur, "Mass Communication and the Study of Rumor," Sociological Inquiry, XXXII, No. 1 (Winter, 1962), p. 52.

If DeFleur is correct, such persons as the central communicators are in a position to exert more influence than others in this face-to-face relationship. This factor becomes even more important when considered along with the evidence put forth by Caplow that rumor systems over time tend to become stable and highly reliable sources of information.
See Theodore Caplow, "Rumors in War," Social Forces, Vol. 25, No. 3 (March 1947), p. 298.

Table 3. Occupational statuses of high and low participating central communicators and number of stories reported by these respondents in Idaho community

High Participator		Low Participator	
Occupational Status	No. Stories Reported	Occupational Status	No. Stories Reported
Barber	18	Beautician [a]	0
County Agent	13	Pharmacist	0
Secretary [b]	11	Housewife [a]	0
Housewife [a]	10	Bodyshop Foreman	1
Realtor	9	Teacher [b]	1
Service Station Operator	8	Gas Sales-deliveryman	1
City Letter Carrier	7	Instrument Technician	1
Housewife [a]	6	Housewife [a]	1
Hospital Housekeeper [a]	6	Teacher [b]	1
Hospital Supervisor [b]	6	Housewife [a]	2
Realtor [c]	6	Dental Assistant [b]	2
		Administrator [c]	2

[a] Position occupied by a woman
[b] Position occupied by a woman whose husband also worked
[c] Position occupied by a man whose wife also worked

Table 4. Occupational statuses of high and low participating central communicators and number of stories reported by these respondents in Utah community

High Participator		Low Participator	
Occupational Status	No. Stories Reported	Occupational Status	No. Stories Reported
Beautician [b]	19	Home Demon. Agent [a]	1
Cook at Hospital [a]	17	Housewife [a]	2
Housewife [a]	16	Housewife [a]	2
Utilities Manager	15	Pharmacist	2
Ser. Sta. Operator	14	Medical Assistant [b]	5
Housewife [a]	14	Farm Coop Manager	6
Teacher	13	Minister [c]	6
Attorney	12	Merchant [c]	7
Bookkeeper [b]	11	Railroad Agent	7
Housewife [a]	11	Dentist	7
Clerk	11	Barber	7
Housewife [a]	11		

[a] Position occupied by a woman
[b] Position occupied by a woman whose husband also worked
[c] Position occupied by a man whose wife also worked

Briefly, central communicators in this study had more education, had more income, had larger families than did the average member of their community, but within the central communicators themselves, however, when comparing the high and low participators, the social characteristics were not consistently higher in one category over the other. For instance, high participating central communicators had larger families than did low participating central communicators, but low participating central communicators had more education and larger income than did high participating central communicators. Neither high nor low participators favored one sex over the other. Of the four respondents who were either single, widowed, etc., one was a high participating central communicator and the other three were low participating central communicators. High participators were slightly older than the average of all central communicators, while low participators were slightly younger than the average of all central communicators in this study. The high participator tended to belong to more organizations.

At this point, it becomes evident that two major factors which could well have been thought to be important were not. The first was that neither sex is more prone than the other to be a high participator

in interpersonal networks. The common assumption, of course, is that a woman in a high rate status would disseminate more news than a man in similar circumstances. The second factor was that working spouses--on the part of either sex--did not contribute to high participation. Here again, a common assumption would probably be that working spouses, of which one or both were in communication-prone statuses, would be more active central communicators, since the climate for participation would be more optimal.

Some generalizations, however, can be made about the social circumstances of the bulk of the central communicators, and particularly the high participators, of this study. Central communicators tended to be (1) persons, or persons auxiliary to them, to whom others go for services, (2) whose service is performed in a relatively short period of time, (3) who can have more than one person at a time on the premises, either waiting for or receiving the service simultaneously, and (4) of either sex and (5) any age (above 18).

From this point, an analysis of the central communicator and the "influential"[21] shows some parallels in their social characteris-

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[21]The term "influential" is used here to cover all those who have been studied as playing an influential role. Depending upon the study, they have been called "opinion leaders," "early adopters," "innovators," "legitimators," and "influentials," among others.

tics. Chief among the common elements shared by the central communicator of this study and the influential in studies on the flow of information,[22] in the adoption of new occupational-professional ideas,[23] and the adoption of new products in consumer behavior studies,[24] are a higher level of formal education than others about them, a degree of social integration as indicated by participation in formal organizations, a higher than average income, and as a person to whom others turn as a source of reliable information.

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[22]For an excellent summary, see Elihu Katz, "The Two-Step Flow of Communication: An Up-to-Date Report on an Hypothesis," Public Opinion Quarterly, XXI (Spring, 1957), p. 61.

[23]See, for example, H. Coleman, E. Katz, and H. Menzel, Medical Innovation (New York: The Bobbs-Merrill Co., Inc., 1966); also North Central Region Extension Service, Adopters of New Farm Ideas, Report No. 13, Michigan State University, East Lansing, 1955.

[24]Thomas S. Robertson, "Social Factors in Innovative Behavior," in Kassarjian and Robertson (eds.), Perspectives in Consumer Behavior (Glenview, Illinois: Scott, Foresman, and Co., 1968), pp. 361-370.